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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------------------|------------------------|
| 10/726,300 | 12/01/2003 | Tomoko Takagi | P/2850-90 | 6103 |
| 2352 7590 06/28/2007 OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403 | | | EXAMINER LUND, JEFFRIE ROBERT | |
| | | | ART UNIT 1763 | PAPER NUMBER |
| | | | MAIL DATE 06/28/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/726,300 | Applicant(s) TAKAGI ET AL. | |
| | Examiner Jeffrie R. Lund | Art Unit 1763 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>12/03, 1/04, 1/06, 4/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group II, claims 5-10, in the reply filed on April 13, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 5 requires that the substrate be heated in the chamber in which a film is deposited. The specification specifically teaches that the substrate is heated in a heating chamber and then transferred to the coating chambers. Thus, the specification does not describe that the substrate is heated in the chamber in which a film is deposited.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 5 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Masao, JP 01-292830.

Masao clearly teaches a chamber 1; substrates 4 placed in the chamber 1; a nitrogen gas flow 5 through the chamber 1 to heat the substrates through heat exchange with the gas; a pumping system the evacuates the chamber. After the substrates are heated to processing temperature a silicon oxide film is deposited on the substrate in the chamber. (Figure 1 and abstract)

6. Claims 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Makoto et al, JP 09-213664.

Makoto et al teaches a heating chamber 900; substrates 907, 908 placed in the heating chamber 900; a heated nitrogen gas flow 5 flowing through the heating chamber 900 to heat the substrates through heat exchange with the gas; a deposition chamber 930a in which a film is deposited located downstream from the heating chamber 900 and connected to the heating chamber 900 by a valve 911. The nitrogen gas is inherently free from moisture and organic substances because both moisture and organic substances are known as contaminants and semiconductor grade gas is typically 99.99+ percent pure. (Figure 9 and paragraph 0072)

7. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Hideo, JP 2001-119049.

Hideo teaches a heating chamber 4; substrate 6 placed in the heating chamber

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4; a heated gas flow consisting of dry clean air (paragraph 0012) flowing through the heating chamber 4 to heat the substrates through heat exchange with the gas; a deposition chamber 1 in which a film is deposited located downstream from the heating chamber 4 and connected to the heating chamber 4. A valve inherently connects the deposition chamber and heating chamber, in order to isolate the atmospheric pressure heating chamber from the vacuum pressure deposition chamber. (Entire document)

8. Claim 6, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ueda et al, US Patent Application Publication 20010007246 A1.

Ueda et al teaches a heating chamber 3; substrates 9 placed in the heating chamber 3; a heated gas flow consisting of compressed air with moisture and organic substances removed by a compression cooler (paragraph 0038) flowing through the heating chamber 3 to heat the substrates 9 through heat exchange with the gas; a filter 33 for removing moisture and organic substances from the gas flow; a deposition chamber 1 in which a film is deposited located downstream from the heating chamber 4 and connected to the heating chamber 4 via a load lock 2 and valves 4. (Entire document)

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of

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the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideo, JP 2001-119049, in view of Masao, JP 01-292830, or Makoto et al, JP 09-213664.

Hideo was discussed above, and teaches using air as the heating gas.

Hideo differs from the present invention in that Hideo does not teach that the gas is nitrogen.

Masao and Makoto et al were both discussed above and both teach using nitrogen as a heating gas.

The motivation for using nitrogen in place of air in the apparatus of Hideo is to provide an inert gas that will not form native oxides on the heated substrates.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the heated gas (i.e. air) of Hideo with the heated gas of Masao and Makoto et al (i.e. nitrogen gas).

12. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al, US Patent Application Publication 2001/0007246, in view of Masao, JP 01-

292830, or Makoto et al, JP 09-213664.

Ueda et al was discussed above, and teaches using air as the heating gas.

Ueda et al differs from the present invention in that Ueda et al does not teach that the gas is nitrogen.

Masao and Makoto et al were both discussed above and both teach using nitrogen as a heating gas.

The motivation for using nitrogen in place of air in the apparatus of Ueda et al is to provide an inert gas that will not form native oxides on the heated substrates.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the heated gas (i.e. air) of Ueda et al with the heated gas of Masao and Makoto et al (i.e. nitrogen gas).

13. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makoto et al, JP 09-213664, in view of Bergman, US Patent 6,494,060 B1.

Makoto et al was discussed above.

Makoto et al differs from the present invention in that Makoto et al does not teach using a compression cooler or filter to remove moisture and organic substances.

Bergman teaches a nitrogen gas purifier that removes moisture and organic substances using a filter and compression cooler.

The motivation for using a filter and compression cooler to remove moisture and organic substances from the nitrogen gas of Makoto et al is to provide clean nitrogen for use in semiconductor apparatus as taught by Bergman

Therefore it would have been obvious to one of ordinary skill in the art at the time

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the invention was made to add the compression cooler and filter of Bergman to the nitrogen supply system of Makoto et al.

14. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideo, JP 2001-119049, in view of Bergman, US Patent 6,494,060 B1.

Hideo was discussed above.

Hideo differs from the present invention in that Hideo does not teach using a compression cooler or filter to remove moisture and organic substances.

Bergman teaches a nitrogen gas purifier that removes moisture and organic substances using a filter and compression cooler.

The motivation for using a filter and compression cooler to remove moisture and organic substances from the air of Hideo is to provide clean air for use in semiconductor apparatus as taught by Bergman

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the compression cooler and filter of Bergman to the air supply system of Hideo.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

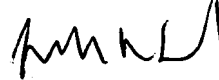
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (10:00 am - 9:00

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pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
6/22/07